ERRATA to
"FOURIER ANALYSIS AND ITS APPLICATIONS"

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Additional corrections will be gratefully received at `folland@math.washington.edu` .

Page 13: On the line before (1.20), insert "for $A \neq 0$" after "and". Immediately after (1.20), insert "For $A = 0$ the solution is $X(x) = C_1 + C_2 x$."

Page 28, item 14: $\sum_1^\infty \quad \to \quad \frac{2}{\pi}\sum_1^\infty$

Page 31, bottom: Insert the following material that somehow got deleted: "shall present some variations of this result under other conditions on f. We first define the class of functions with which we shall be working."

Page 33, line -3: $\int_{-\pi+\theta}^{\pi+\theta} \quad \to \quad \int_{-\pi-\theta}^{\pi-\theta}$

Page 40, line 10: entry 4 $\to$ entry 6

Page 44, line 5: extiensions $\to$ extensions

Page 58, line 2: $\int_{-\pi}^{\pi} \quad \to \quad \frac{1}{2\pi}\int_{-\pi}^{\pi}$

Page 61, Exercise 1a: (2.10) $\to$ (2.12)

Page 61, Exercise 1b: (2.12) $\to$ (2.14)

Page 65, formula (3.9): $|a_n\|^2 \quad \to \quad \|a_n\|^2$

Page 76, line 3 of proof of Lemma 3.2: $\sum_m^n \quad \to \quad \sum_M^N$ (two places, to avoid conflict with use of n as index of summation)

Page 78, line -9 (a 2-line display): $|\widetilde{c}_n - c_n|^2 \quad \to \quad 2\pi|\widetilde{c}_n - c_n|^2$ (two places)

Page 79, next-to-last line of text: $\int_a^b \quad \to \quad \int_{-\pi}^{\pi}$

Page 90, last line of Theorem 3.10: $\langle f, \phi_n\rangle \quad \to \quad \langle f, \phi_n\rangle_w$

Page 90, line -8: $\langle f_1, \widetilde{f_2}\rangle \quad \to \quad \langle f_1, \widetilde{f_2}\rangle_w$

Page 95, line 4: $f'(a) - \alpha f(a) = f'(b) - \beta f(b) = 0 \quad \to \quad f'(a) + \alpha f(a) = f'(b) + \beta f(b) = 0$

Page 98, line 1: §4.3 $\to$ §4.4

Page 100, formula (4.8): When L is 2nd order in t so that $h = (h_1, h_2)$, u_0 is really $(u_0, 0)$.

Page 111, line -2: (4.22) $\to$ (4.24)

Page 114, Exercise 8a, line 2: (2.24) $\to$ (2.27)

Page 117, line -5: $b \quad \to \quad -b$

Page 152, lines 10, 14, and 15: $\pi c \quad \to \quad c$ (several places)

Page 152, line 12: 5.3 $\to$ 5.2

Page 151, line 5: §4.4 $\to$ §4.5

Page 157, Exercise 4: The differential equation should contain the term u_{zz} (although the requested solutions are independent of z).

Page 162, line −10: §4.2 $\to$ §4.3

Page 163, line 4: $l/2c \to \pi c/l$

Page 176, formula (6.21): $+m^2y \to -m^2y$ and $x \to s$

Page 186, line 11: $e^{-2xz-z^2} \to e^{2xz-z^2}$

Page 179, formula (6.26): $P_n^{|m|}(\phi) \to P_n^{|m|}(\cos\phi)$

Page 190, lines −8 and −7: Delete "it defines a polynomial of degree n only when α is not a negative integer, and".

Page 190 line −1: $k+1-\alpha \to k+1+\alpha$

Page 193, line −3: defninion $\to$ definition

Page 197, line −12: $\nu^2y \to +n^2y$

Page 197, line −7: $e^{in\theta}z^n \to e^{in\theta}z^{|n|}$

Page 205, line 0: Delete the incorrect page header.

Page 206, line 3 of (v): §8.1 $\to$ §8.2

Page 213, Exercise 6: defining f_{t+s} $\to$ defining $f_t * f_s$

Page 214, line −2: $i(d/d\xi)e^{-i\xi} \to i(d/d\xi)e^{-i\xi x}$

Page 216, next-to-last displayed formula: $\mathrm{Res}_{z=i} \to \mathrm{Res}_{z=ia}$

Page 220, formula (7.18): The dy is missing from the first integral.

Page 221, line 7: $\frac{1}{2i} \to -\frac{1}{2i}$

Page 222, line 1: 2.7 of §2.4 $\to$ 3.6 of §3.4

Page 224, Exercise 7, line 3: Theorem 2.3 $\to$ Theorem 2.5

Page 230, line 4: $2\pi t \to \pi t$

Page 233, last displayed formula: $\Delta_0\widehat{f} \to \Delta_0\widehat{F}$

Page 235, Exercise 7, last line: $e^{-i(b-a)t/2} \to e^{-i(a+b)t/2}$

Page 236, line 2 of Exercise 10: $f'+cf=0 \to f'(x)+cxf(x)=0$

Page 239, line −5: $e^{\xi^2kt} \to e^{-\xi^2kt}$

Page 242, line −1: $\lim_{\delta\to 0} \to \lim_{\epsilon\to 0}$

Page 250, line −3: $e^{2\pi im} \to e^{2\pi in}$

Page 250, line −2: $\widehat{a}_n \to \widehat{a}_m$

Page 251, display after (7.40): $n > k \to n < k$

Page 252, line −5: $a_m \to \widehat{a}_m$

Page 259, lin −9: $f(z) \to f(t)$

Page 261, line 12: (8.2) $\to$ (8.4)

Page 275, line −7: $\sin(t-s) \to \sin 2(t-s)$

Page 279, formula (8.18): $\alpha\beta \neq 0 \quad \to \quad (\alpha, \beta) \neq (0, 0)$

Page 286, Exercise 9c, line 1: period $2l \quad \to$ period $4l/c$

Page 327, line -2: $1 - t \quad \to \quad 2\pi - t$ (2 places in exponents)

Page 328, line 3: $1 - t \quad \to \quad 2\pi - t$

Page 333 (starting below formula (9.27)) and page 334: $\widehat{f} \quad \to \quad \widehat{F}$ (numerous places!)

Page 354, Example 1, line 1: complex $\to$ nonzero

Page 355, line 4: $(\alpha\alpha' \neq 0,\ \beta\beta' \neq 0) \quad \to \quad ((\alpha, \alpha') \neq (0, 0),\ (\beta, \beta') \neq (0, 0))$

Page 360, second display: $\tau_2 \quad \to \quad \tau^2$

Page 371, formula (10.32): $+\frac{\beta}{\mu} \quad \to \quad -\frac{\beta}{\mu}$ and, in the integral, $v_a \quad \to \quad v_b$

Page 373, last display before Lemma 10.3: $E_1E_4 \quad \to \quad \mu^{-1}E_1E_4$ and $E_2E_3 \quad \to \quad \mu^{-1}E_2E_3$

Page 375, Figure 10.2: The coordinates of the vertices should be divided by $b - a$.

Page 375, proof of Theorem 10.4(a): The first seven lines of the argument are flawed because of a confusion between the μ of Lemma 10.3 and the $\zeta = \mu^2$ here. Rather than taking γ_N to be the contour in Figure 10.2, let Γ_N be the *right-hand half* of that contour (corrected as above) in the μ-plane (including endpoints), and let γ_N be the image of Γ_N in the ζ-plane under the map $\zeta = \mu^2$. Thus γ_N is a closed contour consisting of two parabolic arcs with focus at the origin and vertices at $\pm[(N + \frac{1}{2})\pi/(b - a)]^2$, intersecting at $\pm 2i[(N + \frac{1}{2})\pi/(b - a)]^2$. Replace the displays on lines 5 and 7 of the proof by

$$\left| \frac{G(x, y, \mu^2)}{\mu^2 - \lambda} 2\mu \right| \leq \frac{C|\mu|^{-1}}{|\mu^2 - \lambda|} 2|\mu| \leq \frac{C'}{N^2} \quad \text{for } \zeta \text{ on } \Gamma_N,$$

and

$$\left| \int_{\gamma_N} \frac{G(x, y, \zeta)}{\zeta - \lambda}\, d\zeta \right| = \left| \int_{\Gamma_N} \frac{G(x, y, \mu^2)}{\mu^2 - \lambda}\, 2\mu\, d\mu \right| \leq \frac{C'}{N^2}(\text{length of } \Gamma_N) = \frac{C''}{N},$$

and then resume the argument in the text starting on line 8.

Page 379, formula (10.35): $xu(x) \quad \to \quad xu'(x)$

Page 381, first line after second displayed formula: $1/\mu\sqrt{x_-x_+} \quad \to \quad 1/|\mu|\sqrt{x_-x_+}$

Page 411, line 9: $\dfrac{A(LB)^{n-1}}{(n-1)!} \quad \to \quad \dfrac{A(LB)^{n-1}}{(n-1)!}|x - x_0|^{n-1}$

Page 414, Answer to Exercise 3c in §3.1: $2 - 9i \quad \to \quad 2 + 9i$

Page 415: Answer to Exercise 3 in §3.2 should be $f_2(x) = x^2 - \frac{1}{3}$.

Page 417, Answer to Exercise 10b in §4.2: $\pi^2 kt$ (in exponent) $\quad \to \quad \pi^2 k$

Page 417, Answer to Exercise 10c in §4.2: The sum should be multiplied by e^{-kt}.

Page 420, Answer to Exercise 2 in §6.3: $P_2^2(\cos\theta) \quad \to \quad P_2^2(\cos\phi)$

Page 422, Answer to Exercise 9b in §7.4: $e^{-\nu b} \quad \to \quad e^{-\nu\beta}$ (six places)

Page 429, top line, second column: T $\quad \to \quad \Gamma$